THREE RANGE DS METERS
Operation Instructions

User Manual for Models 532T1
532T2
532M1

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MYRON L COMPANY
pH/Conductivity Instrumentation
Accuracy • Reliability • Simplicity

DESCRIPTION

This manual describes your Myron L DS meter, tells you how to use it, and how to keep it working accurately for many years.

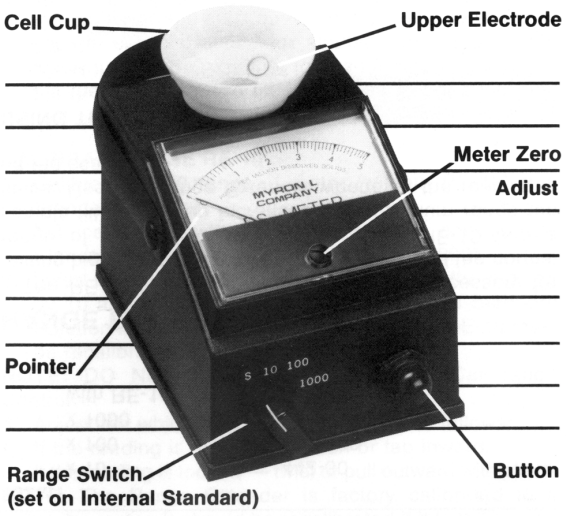
Your model 532 three range DS Meter is a compact instrument which operates on the principal of electrical conductivity. It will quickly determine the conductivity or ppm/Total Dissolved Solids of almost any solution. Model 532M1 has a dial calibrated in micromhos (µmhos), which is equivalent to the metric microsiemens (µS). Models 532T1 and 532T2 convert the conductivity directly into parts per million (ppm) of Total Dissolved Solids. All are 3.4" x 4.5" x 4.0" (85 x 129 x 126mm) and weigh less than one pound (.45 kg). DS Meters are completely self contained. The built-in cell is automatically temperature compensated from 50° to 160°F (10° to 71°C). They are powered by a 9 volt battery good for at least 2000 tests, or one year shelf life.

MODEL	RANGES		
532T1	0-50,	0-500,	0-5000 ppm
532T2	0-25,	0-250,	0-2500 ppm
532M1	0-50,	0-500,	0-5000 µmho

By using an RE-10 Range Extender (see ACCESSORIES), the maximum range of each meter may be increased ten times.

The pictures in this manual show the major operating parts of your Myron L DS Meter. Handle your DS Meter and identify these parts to become familiar with it.

Model 532T1 shown



USING YOUR METER

1. Turn the Range Switch to the desired range. If you don't know which range to use, set it to 1000.
2. Rinse the cell cup three times with the sample you want to test. (For very hot or very cold samples see TEMPERATURE COMPENSATION below.)

NEVER FILL THE CELL BY DIPPING THE METER INTO WATER!

3. Fill the cell with another sample to at least 1/4" (6 mm) above the upper electrode.
4. Press the black button.
5. Read the dial value indicated by the pointer. If the pointer is very low on the left or goes off the scale to the right, try the next lower or higher range.
6. Multiply the dial value by the range setting to determine parts per million (ppm) Total Dissolved Solids on the 532T models or the conductivity in micromhos (µmhos) on the 532M1.
7. If the pointer goes off the scale to the right on the x1000 range, try RANGE DOUBLING (see inside) or an RE-10 Range Extender (see ACCESSORIES).

NOTE:

When you are finished with the meter, RINSE THE CELL CUP with clean water, preferably distilled or deionized.

TEMPERATURE COMPENSATION: For very hot or very cold solutions let the three rinse samples each remain in the cell for several seconds. Then immediately fill the cell with the sample you want to test (step 3 above). This allows the automatic temperature compensation feature time to work properly.

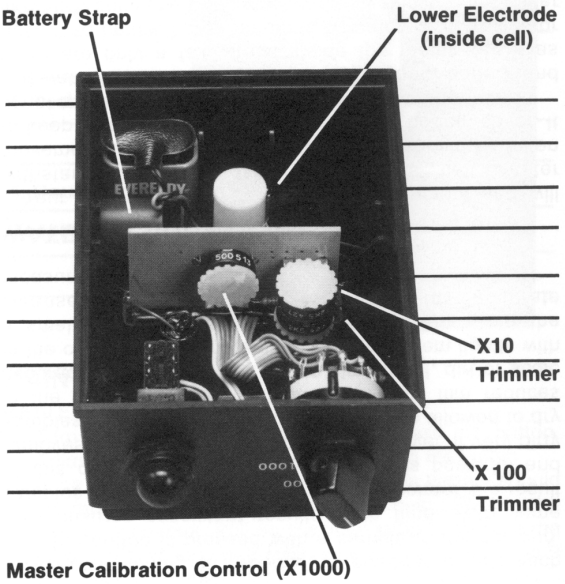
CAUTION

DO NOT use with samples hotter than 160°F (71°C). The readings WILL NOT be accurate.

DO NOT splash solvents such as lacquer thinner, acetone, benzene or chlorinated solvents on the plastic case.

DO NOT fix or modify the meter. That will void your warranty. See SERVICE for details or consult Myron L Company.

DO NOT DIP THE INSTRUMENT INTO WATER. If water does get inside the instrument, see MAINTENANCE for instructions on drying it.



CALIBRATION

STANDARD SOLUTIONS: A Standard Solution has a known conductivity and ppm. Your meter was calibrated at the factory using NIST traceable Standard Solutions. You can keep your meter accurate by using these same Standard Solutions. To pick the right Standard Solution for your meter see ACCESSORIES.

CHECKING CALIBRATION

1. Turn the Range Switch to the x1000 range.
2. Test a sample of appropriate Standard Solution.

CAUTION: Throw the Standard Solution away as you use it. Don't put the used samples back in the bottle.

3. If the DS Meter does not indicate the same value as is on the Standard Solution bottle's label, first clean the cell. For directions on how to do this see CELL inside. Rinse the cell thoroughly and test the Standard Solution again. If the DS Meter still does not indicate the correct value, recalibrate it as described below.

TO RECALIBRATE THE METER

1. Remove the bottom cover using fingernails or a small screwdriver to loosen the front or rear edge. Identify the three Calibration Controls (see photo below left) so you can find them by touch while calibrating.
2. Test another sample of the Standard Solution (be careful to not to splash solution inside the meter).
3. Adjust the Master Calibration Control until the meter indicates the value that is on the Standard Solution label.
4. The Master Calibration Control adjusts all ranges. For best accuracy in the lower ranges, get the recommended Standard Solutions for the x100 and x10 ranges. Use the x100 and x10 trimmers to recalibrate those ranges as in steps 2 and 3 above.
5. Turn the Range Switch to "S" and press the button. Compare the meter reading to the INTERNAL STANDARD value on the meter's bottom label. If they are noticeably different, mark the new value in place of the old one.

NOTE:

A 532T (ppm) Meter may be calibrated to read either 442 or NaCl parts per million, but not micromhos. A 532M1 (conductivity) Meter may only be set to read micromhos.

INTERNAL STANDARD: An INTERNAL STANDARD value for each meter is on the label on the bottom cover of each meter. Use it between normal calibrations as a field check of your meter's accuracy.

To verify your meter's calibration:

1. Turn the Range Switch to "S" and press the button.
2. If the reading matches the INTERNAL STANDARD value on the bottom label, your meter is in calibration. If not, see FIELD CALIBRATION.

NOTE:

The feature described above is intended as a quick field calibration check, or for using the range doubling technique. It is not a replacement for calibration with Standard Solution.

FIELD CALIBRATION/MAINTENANCE

1. Remove the bottom cover using fingernails or a small screwdriver to loosen the front or rear edge.
2. Press the button and adjust the Master Calibration Control until the meter reading is the same as the INTERNAL STANDARD value.
3. Replace the bottom cover.

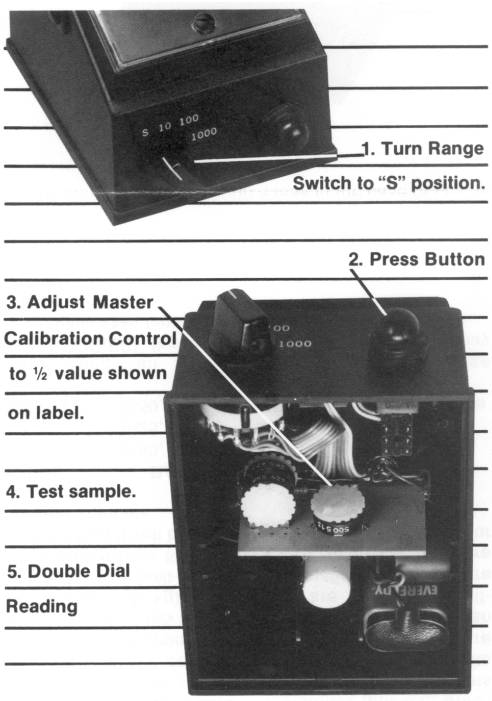
RANGE DOUBLING

1. Turn the Range Switch to "S". Remove the bottom cover.
2. While pressing the button, adjust the Master Calibration Control until the meter reads one-half the INTERNAL STANDARD value shown on the bottom label. For example: If the INTERNAL STANDARD value is 4.2, adjust the Master Calibration Control until the reading is 2.1.
3. Test your sample (take care to keep the inside of the meter dry). Multiply by two the reading of the sample tested. For example: If the meter reading is 3.2 on the x1000 range (3200), the actual value of the sample tested is 6400 (3200 x 2).

NOTE:

After completing tests requiring range doubling, reset "S" to its proper value and replace bottom cover.

EASY STEPS TO DOUBLE RANGE



MAINTENANCE

BATTERY CHECK

1. Turn the Range Switch to "S" and press the button. Adjust the Master Calibration Control to maximum.
2. If the meter reads less than full scale the battery should be replaced. Remove the bottom cover. Detach the battery connector. Pull on the vinyl strap to remove the battery. Replace with a fresh zinc carbon or alkaline 9 volt battery. Reinsert the vinyl strap to secure battery.

ACCESSORIES

STANDARD SOLUTIONS

Your DS Meter has been factory calibrated with the appropriate NIST traceable Standard Solution. All Myron L conductivity Standard Solution bottle labels show three values: ppm **442**, ppm **sodium chloride**, and **conductivity** in micromhos.

442: Unless otherwise specified, the calibration used for all DS Meters is the "442" standard. The 442 Standard Solutions™ consist of the following salt ratios: 40% sodium sulfate, 40% sodium bicarbonate, and 20% sodium chloride. This salt ratio has conductivity characteristics closely matching natural waters and was developed by the Myron L Company over three decades ago.

Sodium Chloride: For every ppm 442 Standard Solution, there is a ppm sodium chloride (NaCl) solution which will have the same conductivity. The parts per million of the equivalent NaCl solution is on each Standard Solution label. Instruments calibrated to NaCl standards are set using equivalent NaCl values.

Conductivity: All Myron L Company Standard Solutions are traceable to the National Institute of Standards and Technology and are within 1.0% of Potassium Chloride reference solutions. The concentrations of the reference solutions are calculated from data in the International Critical Tables, Vol. 6.

RECOMMENDED STANDARD SOLUTIONS

MODEL/RANGE	SOLUTION NUMBER
532T1	
x 10	442-30
x 100	442-300
x 1000	442-3000
with RE-10	442-30,000
532T2	
x 10	442-15
x 100	442- 150
x 1000	442-1500
with RE-10	442-15,000
532M1	
x 10	442-30
x 100	442-300
x 1000	442-3000
with RE-10	442-30,000

RANGE EXTENDER

The RE-10 Range Extender is a useful accessory for testing high conductivity/ppm solutions beyond the normal range of your DS meter. Inserting the RE-10 into a sample-filled cell cup increases the maximum range ten times. Use the Range Extender whenever the reading is off the scale.

USING THE RE-10

1. Fill the cell cup three times to rinse it, but each time insert the Range Extender to rinse it also.
2. Fill the cell cup with your sample. Push the Range Extender into the cell cup, seating the O-ring seal.
3. Use and read the DS Meter in the normal manner. Multiply the reading by 10.
4. For best accuracy, repeat the complete test with a fresh sample.
5. When you're done testing, remove the Range Extender. Thoroughly rinse the cell cup and Extender with clean water (preferably distilled or deionized) to eliminate dried salts build-up. This is extremely important when the instrument will be used to test high purity water.

CELL

Self-conditioning of the built-in electrodes occurs each time the button is pressed with a sample in the cell cup. This ensures consistent results each time. With some samples a small downward swing of the pointer is a result of this conditioning action. This action is powerful and removes normal films of oil and dirt. However, if very dirty samples — particularly scaling types — are allowed to dry in the cell cup, a film will build up. This film reduces accuracy. When there are visible films of oil, dirt or scale in the cell cup or on the electrode, scrub them lightly with a small brush and household cleanser. Rinse out the cleanser and the meter is ready for accurate measurements.

WATER INSIDE THE METER

Your Myron L meter is a rugged instrument and will withstand water exposure around its cell, meter movement, and switches. However, care should be taken to keep water from leaking in around the bottom cover. It is not sealed (to prevent condensation from forming).

If water is relatively clean (i.e., tap water or better), and there are only a few drops inside the meter, dry it as described below. Large amounts of water, or corrosive or very dirty solutions will almost certainly damage the meter movement or electronics. Such meters should be returned to the Myron L Company for repair.
To dry your meter:

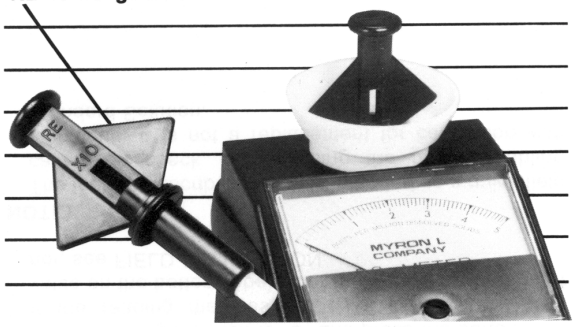
1. Shake excess water out of the inside of the meter.
2. Dab the exposed surfaces dry with an absorbent cloth or tissue. Avoid pushing any water into the Calibration Control or either of the switches.
3. Air dry the meter in a warm area with the bottom cover off. Allow several hours for thorough drying.

If the water entered through a leak in the case or cell, or if the instrument shows erratic readings or other unusual behavior, return it to the Myron L Company for servicing.

SERVICE

Any service required other than battery replacement, cleaning, or calibration must be referred to the Myron L Company. If you have any questions about this instrument, its use, or a particular application, please contact the Myron L Company.

RE-10 Range Extender



CALIBRATING THE RE-10

1. Calibrate x1000 range of meter (without RE-10) with Standard Solution.
2. Fill cell cup with appropriate high conductivity Standard Solution (442-15,000 or 442-30,000).
3. Insert RE-10 and press the button. Multiply the reading by 10 and compare it with the value on the Standard Solution label. It they are not the same the RE-10 must be recalibrated.

NOTE: DO NOT adjust the Conductivity Calibration Control.

4. Adjust the white insert of the Extender as follows: If the reading is too high — push or tap inward. If the reading is too low — twist or pull outward with pliers.

NOTE: The Range Extender is factory calibrated to a particular meter. It should be recalibrated if it is to be used with another meter.

PORTA PAK

Carrying Case for use with all Myron L DS and pDS meters.

ORDERING

To order accessories contact your nearest stocking distributor, or the Myron L Company.

WARRANTY/SERVICE

The Myron L 532T1, 532T2, 532M1 Meters have a limited two year warranty. If your instrument fails to operate properly, check the batteries and calibration. If it still fails to function properly, return it prepaid to the Myron L Company.

Faulty instruments may be returned to us without prior permission.

METERS WITHIN TWO YEAR WARRANTY PERIOD:

Failures due to materials or workmanship will be repaired or replaced (our option) without charge if returned freight prepaid. If failure is deemed by factory to have been caused by abuse or tampering, the following procedure will apply.

INSTRUMENTS/CONTROLS OUT OF WARRANTY:

Diagnosis will be made and repairs completed, providing the repair charges are $80.00 or less.
NOTE: Actual repair charges may be less than this amount.

We will diagnose (but not repair) a returned meter and mail an estimate of charges if ANY of the following apply:

1. Repair charges will be more than $80.00
2. You specifically request an estimate of required repairs and charges.
3. The cost of required repairs exceeds one-half the list price of a new instrument.
4. The instrument is over ten years old. Because of component changes and improvements, such instruments can no longer be repaired.

NOTE: Unrepaired meters are discarded unless you want them returned to you. If so, there is currently a $25.00 charge per unrepaired instrument to cover diagnosis and handling.

This warranty is limited to the repair or replacement of the Myron L 532T1, 532T2, 532M1 Meters only. The Myron L Company assumes no other responsibility or liability.

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Printed in U.S.A.

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